

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-4, 6, 8, 9, 14, 15, and 18-34 are pending in the present application. Claims 1-4, 6, 8, 9, 14, 15 and 18-31 are amended, Claims 5, 7, 10-13, 16 and 17 are cancelled without prejudice or disclaimer, and Claims 32-34 are added by the present amendment.

Applicants submit that no new matter is added. In particular, new Claims 33-34 correspond to original Claim 8, and support for new Claim 32 can be found in original Claim 1.

In the outstanding Office Action, the drawings, the specification, and Claims 9, 10, 12-14, 16-18, 24 and 26 were objected to. Claims 1-8, 11, 15, 19-23, 25 and 27-31 were rejected under 35 U.S.C. § 103(a) as unpatentable over Zhang et al. (U.S. Patent No. 6,233,709, herein “Zhang”) in view of Rasky et al. (U.S. Patent No. 5,278,871, herein “Rasky”).

Regarding the objection to the drawings, Figure 7 is modified in light of the comments noted in the outstanding Office Action. Specifically, reference number 72 is added to indicate a second switch. A replacement drawing is included. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the objection to the specification, the specification is modified in light of the comments noted in the outstanding Office Action. In particular, headers are added as appropriate within the specification. Accordingly, it is respectfully requested that this objection be withdrawn.

Regarding the objection to the claims, the claims are modified in light of the comments noted in the outstanding Office Action. In particular, Claims 8, 9, 14, 15, 18, 23, 27 and 29 are amended, and Claims 10, 12, 13, 16 and 17 are canceled without prejudice or disclaimer. Accordingly, it is respectfully requested that this objection also be withdrawn.

Claims 1-8, 11, 15, 19-23, 25 and 27-31 were rejected under 35 U.S.C. § 103(a) as unpatentable over Zheng in view of Rasky. That rejection is respectfully traversed.

Amended Claim 1 is directed to a method of decoding information by turbocoding of source information, the coded information being represented by a set of initial weighted values. The method includes a finite sequence of iterations. Each of the finite sequence of iterations proceeds with an identical cycle of complete decoding of the information coded by a set of elementary decoding operations concatenated in parallel or in series separated by deinterleaving and/or interleaving steps. Each of the elementary decoding operations receives a first item of information to be decoded represented by a set of input weighted values and is, generated and an item of elementary decoded information represented by a set of output weighted values. At least a last iteration of the finite sequence of iterations is followed by at least one hard decision operation supplying an item of output information from the item of elementary decoded information from at least one of the elementary decoding operations of the last iteration.

The method further includes at least one error detection operation for the first item of output information and, in the event of error, the first item of output information or a second item of output information, obtained by a hard decision from the elementary decoded information from at least one of the elementary decoding operations of the last iteration, is re-encoded and then converted into a set of weighted values. The weighted values are combined with the initial weighted values or with the input weighted values of an elementary decoding operation of the first iteration to supply modified initial weighted values or modified input weighted values, and the sequence of iterations is repeated using the modified values.

In a non-limiting example, Figure 7 illustrates that a device receives input information from a demodulator, through switch 78, to be decoded represented by a set of initial weighted values (see also the specification at page 10, lines 1-3). The input information is supplied to a

turbodecoder 70 in which it is turbodecoded (see also the specification at page 10, line 3). The turbodecoded information is transmitted to an error detector 71 controlling a second switch 72 that orients the decoded information to output 73 or turbocoder 74 depending on whether the turbodecoded information is error-free or not error-free, respectively (see also the specification at page 10, lines 4-7). Turbocoder 74 re-encodes the erroneous information and then operator 75 converts the re-encoded erroneous information into weighted values (see also the specification at page 10, lines 7-9). These weighted values are then multiplied by a multiplier 76 by an attenuation coefficient α before being subtracted from the initial weighted values, which is represented symbolically by switch 78 in the high position (see also the specification at page 10, lines 9-11). The modified input information is once again turbodecoded and a new error detection takes place (see also the specification at page 10, lines 11-13). The decoding method continues until the turbodecoded information is error-free or the number of turbodecoding cycles (each cycle consisting of a sequence of iterations) reaches a given value (see also the specification at page 10, lines 13-15).

Zheng does not teach or suggest a method of decoding information by turbocoding of source information that in the event of error, an item of output information, obtained by a hard decision from elementary decoded information from at least one of elementary decoding operations of a last iteration, is re-encoded and then converted into a set of weighted values, the weighted values are combined with initial weighted values or with input weighted values of an elementary decoding operation of the first iteration to supply modified initial weighted values or modified input weighted values, and the sequence of iterations is repeated using the modified values, as recited in Claim 1. Instead, Zhang discloses an iterative decoder that performs decoding on a coded information signal based on minimum and maximum values for the number of decoding iterations to be performed for a particular data transmission (Abstract; Figure 2; and column 2, lines 61-65). The outstanding Office Action at page 5, lines 11-12

indicates that the decoding process taught by Zhang does not teach re-encoding or combining initial values to obtain modified values. Thus, unlike the claimed invention in which the sequence of iterations for a turbodecoding is repeated using the modified values to generate non-erroneous decoded information, Zhang merely discloses an iterative decoder.

Rasky does not overcome the above-noted deficiencies of Zhang. In particular, Rasky does not teach or suggest a method of decoding information by turbocoding of source information. Instead, Rasky discloses a receiver having improved signal weighting parameter estimation generally (Abstract). In fact, Rasky does not even mention decoding information by turbocoding. Further, Rasky does not teach or suggest a method of decoding information by turbocoding of source information that, only in the event of an error, output information is re-encoded and then converted into a set of weighted values that are combined with initial weighted values or with input weighted values to supply modified weighted values. Instead, Rasky discloses that at least one iteration of a first decoded received vector is always re-encoded (Figure 1; and column 5, lines 51-57). In fact, Rasky teaches that it is preferential to always perform correction without testing for errors because “each time receiver 100 undergoes an iteration, it corrects more and more of the errors introduced by both the propagation medium and receiver 100 with respect to signal 101” (Figure 1; and column 6, lines 29-32). Thus, unlike the claimed invention that performs correction based on at least one error detection operation, Rasky teaches that a correction is always performed at least once.

Accordingly, it is respectfully requested this rejection be withdrawn.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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